

## GRAND COULEE IN HISTORY

Recent inquiries about Grand Coulee, its nature as a physiographic feature of Washington, and the impression it made upon early explorers, have caused Henry Landes, Dean of the College of Science, University of Washington, and formerly State Geologist, to prepare the foregoing article and the editor to assemble some of the records left by the explorers.

The book entitled *The Fur Hunters of the Far West* by Alexander Ross was published in London in 1855, but the author tells of his observations, while an employe of the Pacific Fur Company (Astoria), the Northwest Company and the Hudson's Bay Company, from 1811 to 1824. In his work, Volume I., pages 34-35, is found one of the earliest references to Grand Coulee as follows:

"As soon as Mr. McKay was out of danger, I left him and set off with all haste to Fort Spokane, distant about 160 miles south-east from Oakanagan, with 55 of our horses. On our way, both going and coming, we made a short stay at a place called the Grand Coulé, one of the most romantic, picturesque, and marvellously-formed chasms west of the Rocky Mountains. If you glance at the map of Columbia, you will see, some distance above the great Forks, a barren plain extending from the south to the north branch of that magnificent stream; there, in the direction of nearly south and north, lies the Grand Coulé, some 80 or 100 miles in length. No one travelling in these parts ought to resist paying a visit to the wonder of the west. Without, however, being able to account for the cause of its formation, we shall proceed to give a brief description of this wonderful chasm, or channel, as it now is, and perhaps has been since the creation.

"The sides or banks of the Grand Coulé are for the most part formed of basalt rocks, in some places as high as 150 feet, with shelving steps, formed like stairs, to ascend and descend, and not infrequently vaults, or excavated tombs, as if cut through the solid rocks, like the dark and porous catacombs of Keif. The bottom or bed, deep and broad, consists of a conglomerate of sand and clay, hard and smooth where not interrupted by rocks. The whole presents in every respect the appearance of the deep bed of a great river or lake, now dry, scooped out of the level and barren plain. The sight in many places is truly magnificent; while in one place the solemn gloom forbids the wanderer to ad-

vance, in another the prospect is lively and inviting, the ground being thickly studded with ranges of columns, pillars, battlements, turrets, and steps above steps, in every variety of shade and colour. Here and there, endless vistas and subterraneous labyrinths add to the beauty of the scene; and what is still more singular in this arid and sandy region, cold springs are frequent; yet there is never any water in the chasm, unless after recent rains. Thunder and lightning are known to be more frequent here than in other parts and a rumbling in the earth is sometimes heard. According to Indian tradition, it is the abode of evil spirits. In the neighbourhood there is neither hill nor dale, lake nor mountain, creek or rivulet, to give variety to the surrounding aspect. Altogether it is a charming assemblage of picturesque objects for the admirer of nature. It is the wonder of the Oregon."

On Sunday, July 24, 1825, John Work, then Clerk, and later Factor of the Hudson's Bay Company, included the following paragraph in his journal:

"The appearance of the country course etc were much the same as yesterday except that we passed through a point of woods, in the morning we passed along the banks of the Columbia at the Lampoile River and before noon crossed the Grand Coolley, some of the mountains to the Northward were topped with snow."

Mr. T. C. Elliott, who edited that part of the Work Journal for this *Quarterly*, Volume III, pages 83 to 115, identified the Lampoile as the San Poil River.

On Monday August 21, 1826, David Douglas, the Scotch botanist, made an extended record of his observations as follows (*Journal, 1823-1827*, pages 208-209):

"Today I overslept myself; started at four o'clock. The country same as yesterday; at eight passed what is called by the voyageurs the Grand Coulee, a most singular channel and at one time must have been the channel of the Columbia. Some places from eight to nine miles broad; parts perfectly level and places with all the appearances of falls of very extraordinary hight and cascades. The perpendicular rocks in the middle, which bear evident vestiges of islands, and those on the sides in many places are 1500 to 1800 feet high. The rock is volcanic and in some places small fragments of vitrified lava are to be seen. As I am situated, I can carry only pieces the size of nuts. The whole chain of this wonderful specimen of Nature is about 200 miles, communicating with the present bed of the Columbia at the Stony Islands, making a

circular curve  $1\frac{1}{2}^{\circ}$  further south, and of course longer than the present chain. The same plants peculiar to the rocky shores of the Columbia are to be seen here, and in an intermediate spot near the north side a very large spring is to be seen which forms a small lake. I stayed to refresh the horses, there being a fine thick sward of grass on the banks. The water was very cold, of a bitterish disagreeable taste like sulphur. My horses would not drink it, although they had had no water since last night. At noon continued my route and all along till dusk. The whole country covered with shattered stones, and I would advise those who derive pleasure from macadamized roads to come here, and I pledge myself they will find it done by Nature. Coming to a low gravelly point where there were some small pools of water with its surfaces covered with *Lemna*, or duck weed, and shaded by long grass, one of the horses, eager to obtain water, fell in head foremost. My guide and myself made every effort to extricate it, but were too weak. As I was just putting some powder in the pan of my pistol to put an end to the poor animal's misery, the Indian, having had some skin pulled off his right hand by the cord, through a fit of ill-nature struck the poor creature on the nose a tremendous blow with his foot, on which the horse reared up to defend himself and placed his fore-feet on the bank, which was steep, when the Indian immediately caught him by the bridle and I pricked him in the flank with my pen-knife, and not being accustomed to such treatment, with much exertion he wrested himself from his supposed grave. The water was so bad that it was impossible for me to use it, and as I was more thirsty than hungry I passed the night without anything whatever."

Readers of Dean Landes' most recent geological discussion in the preceding article will find interest in comparing with it the above earlier discussion by a trained and enthusiastic botanist.

Another extended and interesting observation was made in 1841. The squadron of the United States Exploring Expedition was anchored at Fort Nisqually, Puget Sound, while explorations were made in radiating directions. One expedition, in command of Lieutenant Robert E. Johnson, crossed the Cascade Range and explored the Yakima and Columbia Valleys as far as Fort Colville. Commander Charles Wilkes of the Expedition gave in the *Narrative* an account of all the excursions. The record of Lieutenant Johnson's important journey is found in Volume IV., pages 416 to 474, and the part dealing with Grand Coulee is given

on pages 436-437. The date of the observations is June 12, 1841, and the record is as follows:

"On the 12th, they reached the Grande Coulée. The common supposition relative to this remarkable geological phenomenon is that it has once been the bed of the Columbia, and this is what would strike every one at its first view; but, on consideration, it is seen that it is much too wide, and that its entrance is nearly choked up by the granite hills that do not leave sufficient space for the river to flow through. The walls of the Coulée consist of basaltic cliffs, similar to those of the Palisades of the Hudson, seven hundred and ninety-eight feet high; and where it was crossed by the party, it was three miles wide; but, a few miles farther to the south, it narrowed to two miles. Its direction was nearly north and south for a distance of at least fifteen miles. In places, the cliffs were broken and appeared as though tributary valleys had been formed in like manner, with perpendicular walls, though but of short extent. In the northern portion of it were several granite knolls resembling islands capped with basalt and called *Isles des Pierres*. The bottom of the Coulée is a plain having some irregularities, but in places, for two miles together, to appearance it was perfectly level. There are in it three lakes: one on the top of the west border, another after descending, and a third between two of the granite islands. The last of these was the largest, being about a mile long, but is not more than three hundred feet broad; these lakes have no visible outlets. Although the soil abounded in the same saline efflorescence that had been remarked on the high prairie, yet the lakes were found to be fresh, and wild ducks were seen in great numbers. In other spots, the earth was damp and overgrown with a rank grass of the same kind as that growing on the prairie. Next to this the wormwood predominated.

"In the level places the earth was much cracked: incrustations were abundant, which, sparkling brilliantly in the sun, gave the plain somewhat the appearance of being covered with water. Specimens of these were procured, the analysis of which will be found in the Geological Report.

"The granite islands, above spoken of, were found to be seven hundred and fourteen feet high. Mr. Johnson named the southern one the Ram's Horn. Dr. Pickering, who visited the north part, found no regularity of structure. All were satisfied, after leaving the Coulée, that it has been the seat of a lake, in the northern branch of which some convulsion had caused a breach,



through which it had discharged itself into the Columbia. If the Columbia had ever flowed through this channel, it must have worn the rocks, but they exhibit no signs of any such abrasion; and yet it seems remarkable that the Coulée had extended from one point of the river to another and, with the exception of its breadth, forming very much the same kind of trench as the Columbia would leave if it forsook its present channel.

"From the observations subsequently made at the lower end of the Grand Coulée, there is, however, reason to believe that it was at one eperiod the bed of the Columbia. The fact of there being large boulders of granite at its lower or south end while there is no rock of similar kind except at its north end would warrant the conclusion that they had been brought from the upper part of it. There were a great number of stones, having the appearance of being water-worn, lying in its bed at the south end as if they had been brought down by the current of a rapid stream.

"The Coulée is too much impregnated with saline matter to permit crops of grain to be raised on it; but it would be admirably adapted for the raising of cattle and sheep, there being abundance of water and plenty of good grass there and for twenty miles on each side of it.

"They left the Grande Coulée by passing up the east cliff or bank at a place where it was accessible for horses and which was much stained with sulphur. Soon afterwards they were overtaken by Mr. Maxwell from Okanogan, which place, although twenty-five miles distant, he had left in the morning."

The marked difference as to the quality of the water in the lakes in the two accounts by Botanist Douglas and Lieutenant Johnson is apparently reconciled by Dean Landes who says some of the lakes are fresh and some are alkali. However, a later explorer denies that Lieutenant Johnson had visited the real Grand Coulee.

Lieutenant Richard Arnold of the Fourth Artillery, United States Army, was a member of the famous Railroad Survey Expedition under Governor Isaac I. Stevens. From Camp Washington, twelve miles south of Spokane House, on October 29, 1853, Governor Stevens sent a letter to Lieutenant Arnold at Colville including these words: "I have only to suggest that in your route to Wallah-Wallah it will be well to examine the Grande Coulée." Later in his report Governor Stevens (*Pacific Railroad Reports*, Volume I., pages 109-110) says as to the results:

“Lieutenant Arnold says as follows in relation to the Grand Coulee and the vicinity between it and the Columbia :

“I again descended to the river by a steep and rocky trail, and marched three miles, encamping near the mouth of the coulee.

“The trail leaves the river to the north, and passes nearly south. After an ascent of 243 feet we arrived upon a level which commands a fine view of the coulee; it was about ten miles wide at the north entrance, and gradually widened until it passed out of sight; its walls were about 800 feet high, and one solid mass of rock basalt, cemented together by lava or some more fusible rock. The trail had a gradual fall for about six miles, which gives a fair index of the ground included between the walls.

“This coulee was twenty miles in length; its walls then passed out of sight, to the west.

“The soil was generally sand, except near the walls, where it was made up of disintegrated rock.

“The line of march the succeeding day was very rocky for six miles, when we entered the second coulee in size. This coulee has the general appearance of the former. Travelling through this, we again entered the Hudson’s Bay trail, near a high, rocky mound. To remove any doubt that may remain on the minds of others in regard to the Grand Coulee, which is laid down on the maps about ninety miles in length, I will state that I obtained the best guide in the country. He was born in this country, and has travelled the route for the last fifteen years. I questioned him very closely in regard to the route travelled by Lieutenant Johnson in 1841. The coulee through which he travelled is not known as the *Grande Coulee* among the old residents.

“After travelling a few miles, I crossed this stream and passed a fine lake about six miles in length and one in width; it was fringed with alder bushes, and filled with wild fowl, duck, geese, and white swan. Along the eastern bank of this lake I again commanded a view of the range along the western bank of the Columbia, as far north as Pisquouse [Wenatchee] river. This view, taken in connexion with the information I have received from my guide, leads me to believe that the country bounded on the east by my line of march, north and west by the Columbia, on the south by a line passing through the mouth of the Pisquouse river, and the southern extremity of the second coulee previously spoken of, is filled with coulees running in every direction, and ranging from one to fifteen miles in length’.”

In spite of Lieutenant Arnold's fine work and his brilliant career (at the close of the Civil War he received the brevet ranks of colonel, brigadier-general and major-general in the regular army), he failed to give a definite or accurate description of Grand Coulee. In fact there are so many differences in the descriptions gleaned that one is tempted to believe that the early explorers may have observed some of the other phenomena in the vicinity of Grand Coulee. Through all the differences there is substantial agreement that the coulees are worth studying and deserve to be included among the marvelous manifestations of Nature's work in the Pacific Northwest.

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